GRIFFIN INTERNATIONAL INC

June 15, 2000

Mr. Matt Moran
Sites Management Section
VTDEC WMD
103 South Main St./ West Bldg.
Waterbury, VT 05671-0404

RE: Initial Site Investigation Report for the Dart Mart II Store, West Street, Rutland, VT (VTDEC Site #87-0105)

Dear Mr. Moran:

Enclosed please find the June 2000 report titled *Initial Site Investigation of Subsurface Petroleum Contamination at the Dart Mart II Facility*. Mr. Dave Stetson of Yankee Associates requested that a copy be forwarded to you for review. Please do not hesitate to call, if you have any questions or comments.

Please call me with any questions that you may have.

Sincerely,

Robert Higgins
Engineer

Att

cc: Mr. Dave Stetson, Yankee Associates
GI #59941533

P.O. Box 943 • Williston, VT 05495 • Phone 802-865-4288 • Fax 802-657-4129
59 Clinton Street • Plattsburgh, NY 12901 • Phone 518-562-4666 • Fax 518-561-6832

INITIAL SITE INVESTIGATION OF SUBSURFACE PETROLEUM CONTAMINATION AT THE DART MART II FACILITY

JUNE 13, 2000

Site Location:

Dart Mart II
377 West Street (Route 4)
Rutland, VT

VTDEC SITE #87-0105
GI Project #59941533

Prepared For:

Mr. Dave Stetson
Yankee Associates
260A South Main Street
Rutland, VT 05701

Prepared By:

GRIFFIN INTERNATIONAL

P.O. Box 943 / 20 Commerce Street Williston, VT 05495 (802) 865-4288

Table of Contents

I. INTRODUCTION

This report summarizes the initial investigation of subsurface petroleum contamination at the Dart Mart II Facility (Site) located on West Street (Route 4) in Rutland, VT (see Site Location Map in Appendix A). This investigation was conducted by Griffin International, Inc. (Griffin) for Yankee Associates.

Subsurface petroleum contamination was detected in soil at the subject site during underground storage tank (UST) system upgrades on December 9, 1998. This investigation was conducted to define the extent and degree of residual petroleum contamination remaining in the subsurface at the site from these USTs.

The investigation consisted of the following tasks:

1. The installation of two groundwater monitoring wells (MW-1 and MW-2); and advancement of two soil borings (SB-1 and SB-2).
2. The collection and laboratory analysis of soil samples from the soil borings.
3. Groundwater sample collection and analysis from the two new monitoring wells to characterize the degree of groundwater contamination in the former source area.
4. Sensitive receptor survey.
5. Preparation of a summary report (this document).

Investigative activities were originally requested at the site by Mr. Matt Moran of the State of Vermont Department of Environmental Conservation (VTDEC) in a letter dated April 23, 1999. This work was conducted generally in accordance with Griffin's *Work Plan and Cost Estimate* dated January 14, 2000. The work plan was approved in a January 20, 2000 letter from Mr. Moran to Robert Higgins of Griffin.

II. BACKGROUND

A. Site Description

The subject property is located at the corner of West Street and Cramton Avenue in the City of Rutland. A Dart Mini Mart gasoline station and convenience store (377 West St.) is located on the southern half of the property. A two-story, single-family residence with full basement (3 Cramton Ave.) is located on the northern portion of the subject lot. The property and on-site buildings are owned by Yankee Associates. The residence is a rental property occupied by one family.

The grounds on the Dart Mini Mart portion of the subject property are largely covered by asphalt (see Site Map). Grass lawn surrounds the residence. The western property boundary is vegetated with shrubs and small trees. A paved driveway off Cramton Ave., located between the two buildings, provides vehicle access to the residence and also serves as additional parking space for the Dart Mini Mart.

Three underground storage tanks (USTs) are located on the Dart Mini Mart property (see Site Map): a 4000-gallon UST containing premium grade gasoline; a 8000-gallon UST containing regular unleaded gasoline; and a No. 2 fuel oil UST, which the owner assumes to be 550 gallons in capacity. A pump island located on the south side of the Dart Mini Mart property dispenses gasoline for retail sale. The No. 2 Fuel Oil UST is used to power the on-site furnace to heat the Dart Mini Mart building. The gasoline USTs are equipped with in-tank monitoring systems to prevent the unknown loss of petroleum product.

The subject property is located in a commercial and residential district of Rutland. The immediately adjacent properties to the north, east, and west are residential lots with single-family, multi-story homes. To the south, across West Street, the ground surface slopes steeply down to the Otter Creek river valley. The Rutland County Recycling Transfer station is located approximately 500 feet to the south of the subject property.

The ground surface in the area surrounding the subject property slopes moderately to the south toward the Otter Creek river valley. The topography at the subject property has been altered to create a level, paved parking area around the Dart Mini Mart. A retaining wall has been constructed along the south edge of the lawn for the residence. Another retaining wall makes up the western border of the property. Stormwater drainage flows south and eastward toward storm drains located on Cramton Ave. and West Street. Stormwater is directed to the sanitary sewer.

There is little space onsite for monitoring well installation. There are several underground and aboveground obstructions (i.e., overhead wires, USTs, petroleum piping, etc.).

B. Background Information

Subsurface petroleum contamination was detected in soil at the subject site during the December 9, 1998, excavation and upgrade of the piping system used to transmit gasoline product from the USTs to the dispenser. During the piping upgrade on December 9, 1998, two USTs (one 1,000-gallon, and one 550-gallon) were discovered at the site. The history of the usage of these USTs is not known. The USTs were removed from the subsurface at that time. This investigation was conducted to define the extent and degree of residual petroleum contamination remaining in the subsurface at the site.

Volatile organic compound (VOC) concentrations, measured with an HNu™ Model HW-101 photoionization detector (PID) equipped with a 10.2 eV bulb, ranged from 0 parts per million (ppm) to 340 ppm in the excavation.

Soils at this site in the vicinity of the excavation consisted of medium gravel with fine sand and some silt from grade to a depth of approximately 1 foot. Below depths of 1 foot, dry light brown fine sand and silt was observed. Groundwater was encountered at approximately 6 feet below grade in December of 1998. Further information regarding the UST closure can be found in Griffin's December 18, 1998 *UST Closure Inspection* report.

Three gasoline UST's were reportedly removed from the subsurface at the site on November 25, 1986. According to a December 3, 1986 memorandum to Mr. John Amadon of the VTDEC (at that time) from Mr. Benjamin Thomas of the VTDEC (at that time), Mr. Thomas was present during the removal of the USTs. According to Mr. Thomas' report two of the USTs were in good condition and one was in excellent condition; none of the USTs were reported to have appeared to be leaking. At the time of the 1986 UST closure approximately 25 to 30 cubic yards of petroleum contaminated soil were removed from the subsurface and stockpiled at the then station owners property. According to Mr. Thomas, VOC concentrations measuring 300 ppm using a Photovac PID were detected in soils in that excavation.

C. Site Geology

According to the *Surficial Geologic Map of Vermont* (Doll, Charles G., ed., 1970), the site is underlain by a kame morraine deposit of glaciofluvial origin, consisting primarily of ice contact outwash gravels. Bedrock underlying these overburden deposits is the Dunham dolomite. (Doll, Charles G., ed., 1961).

III. INVESTIGATIVE PROCEDURES

A. Monitoring Well Installation

On April 4, 2000, four soil borings were advanced by Adams Engineering of Underhill, Vermont using a vibratory drill rig. Of the four borings driller refusal was consistently met at depths above the groundwater table in SB-1 (12.8 feet below grade) and SB-2 (12.5 feet below grade); therefore, monitoring wells were not constructed in these borings. Satisfactory alternate locations for these wells were not available. As monitoring wells were not constructed in soil borings SB-1 or SB-2, soil samples were collected from the base of these borings for submittal for laboratory analysis per EPA Method 8021B. Monitoring wells MW-1 and MW-2 were constructed in the two soil borings that were advanced to sufficient depths.

Drilling and well construction were directly supervised by a Griffin engineer. Undisturbed soil samples, collected from the boring with the sampler, were logged by the supervising engineer and screened for the presence of volatile organic compounds (VOCs) using an HNu™ systems photo ionizing detector (PID). Soils were screened using the Griffin Jar/Polyethylene Bag Headspace Screening Protocol, which conforms to state and industry standards. Contaminant concentrations and soil characteristics were recorded in detailed boring logs by the supervising Griffin engineer (see Well Logs, Appendix B).

The monitoring wells were installed on-site to assist in defining the degree and extent of residual subsurface petroleum contamination. Monitoring wells MW-1 and MW-2 were installed in an area believed to be side to downgradient of the UST area. Soil boring SB-1

was installed in an area believed to be upgradient of the source area. Soil boring SB-2 was installed in an area believed to be cross-gradient of the source area.

SB-1

Subsurface conditions encountered from zero to approximately 12.8 feet below surface grade (bsg) in boring SB-1 consisted of light brown fine sand with silt. Driller refusal was encountered at a depth of 12.8 feet bsg. VOCs were not recorded above the detection limits of the PID in the screened soils during the advancement of this boring. A soil sample collected from SB-1 at a depth of 12.8 feet below grade was submitted for laboratory analysis per EPA Method 8021B. Sample analysis results are summarized in Appendix D. According to the results of the laboratory analysis, none of the compounds targeted by the analysis were detected above method detection limits.

SB-2

Subsurface conditions encountered from zero to approximately 12.5 feet bsg in boring SB-2 consisted of dry, poorly sorted coarse gravel underlain by light brown fine sand and silt. Driller refusal was encountered at a depth of 12.5 feet bsg. VOCs were not recorded above the detection limits of the PID in the screened soils during the advancement of this boring. A soil sample collected from SB-2 at a depth of 12.5 feet below grade was submitted for laboratory analysis per EPA Method 8021B. Sample analysis results are summarized in Appendix D. According to the results of the laboratory analysis, none of the compounds targeted by the analysis were detected above method detection limits.

MW-1

The boring for MW-1 was advanced to 24 feet below grade. Subsurface conditions encountered from zero to approximately 2 feet bsg in the boring for monitoring well MW-1 consisted of reddish fine sand with some silt. Dry, light brown, fine sand with silt was observed from depths of 2 to 14 feet below grade. Dry, light brown medium to fine sand, underlain by moist silt and fine sand was observed from 14 to 24 feet below grade. Wet, brown, coarse gravel was observed from 24 to 25 feet below grade. Gasoline odors were observed in the samples collected between the depth of 2 feet bsg and 24 feet bsg. VOC concentrations ranging from 0 to 340 ppm were measured in soils from this boring.

MW-2

The boring for MW-1 was advanced to 20 feet below grade; the driller met refusal at this depth. Subsurface conditions encountered from zero to approximately 4 feet bsg in the boring for monitoring well MW-2 consisted of dry, black, medium gravel. Dry, light brown, fine sand with silt was observed from depths of 2 to 17 feet below grade. Wet, brown, coarse gravel was observed from 17 to 20 feet below grade. Gasoline odors were observed in the samples collected between the depth of 4 feet bsg and 17 feet bsg. VOC concentrations ranging from 0 to 150 ppm were measured in soils from this boring.

The monitoring wells are constructed of 1.5 inch diameter, schedule 40 PVC, with a length of 0.010-inch slotted screen; the length of the riser and the screened section of pipe varied depending on the depth of the well. With the vibratory method of drilling, the monitoring

well is installed in the open borehole following removal of the sampler. The annulus between the borehole wall and the screened section of each well is filled with a sand pack to filter fine sediments in groundwater from entering the well. Above the sand pack, the annulus is filled with a 1 to 2 foot thick bentonite clay grout seal to prevent infiltration into the borehole. An additional seal is placed at the ground surface to prevent surface water from entering the borehole. Each well is protected at the surface by a flush mounted steel well head protective casing and a bolt down cover. The well head protection casing is set in cement. The soil boring logs and monitoring well as-built specifications are presented in Appendix B. The monitoring well locations are indicated on the Site Map (Appendix A).

B. Determination of Groundwater Elevations

The monitoring well locations and elevations were surveyed on April 14, 2000, for inclusion on the Site Map (Appendix A). Also on April 14, 2000, depth to water measurements were taken with the use of a Keck™ interface probe in both wells. These measurements were subtracted from the top of casing elevations, which were determined relative to an arbitrary datum of 100 feet at the top of the casing for MW-1, to determine the water table elevation at each of the wells. Groundwater level data are recorded in Appendix C. No free phase petroleum product was observed in any of the monitoring wells gauged on April 14, 2000.

Based on the site topography and the relative location of the Otter Creek, groundwater is believed to flow to the south.

C. Groundwater Sample Collection and Analysis

On April 14, 2000, groundwater samples were collected from the two monitoring wells and submitted to Endyne, Inc. of Williston, Vermont. The samples were collected according to Griffin's groundwater sampling protocol, which complies with industry and state standards. The samples were analyzed for VOCs by EPA Method 8021B. In accordance with VTDEC protocols and for quality assurance/quality control (QA/QC) purposes, a duplicate sample (MW-1) and a trip blank were also collected and analyzed for VOCs by EPA Method 8021B.

Several compounds were detected in excess of Vermont Groundwater Enforcement Standards (VGESs) in samples collected from both monitoring wells. Results from the analyses of the trip blank sample indicate that adequate QA/QC measures were maintained during sample collection and analysis. Groundwater analytical data are tabulated in Appendix D. The groundwater analytical laboratory report is included in Appendix E.

D. Sensitive Receptor Risk Assessment

A visual survey of the area surrounding the Site was conducted in April of 1999 in conjunction with the monitoring well installation activities. Based on these observations, an estimation of the potential risk to identified receptors was made based on proximity to the former UST source area and contaminant concentration levels in subsurface soils and groundwater.

VOCs of 320ppm by 5' bgs w/ HNU!

Water Supplies

According to Mr. Alan Shelvey, Assistant City Engineer, the buildings have connections to municipal sanitary sewer and water systems. Stormwater in this region of the city drains to the sanitary sewer. There is no separate stormwater sewer system. The source of water for Rutland City and parts of Rutland Town is the Rutland City Reservoir northeast of the city. Properties immediately surrounding the Site are reportedly served by this municipal water source. Based on the negligible source area contamination at the site and the distance between the water source and the site, the municipal water supply is likely at little risk of contamination from the former UST source area. - OK

Buildings in the Vicinity

The Dart Mart II building is situated on a concrete slab foundation. Since this building does not contain a basement, there is likely minimal risk of petroleum vapor migration posed to the site building by the former UST source area. The on-site residence is located in what is believed to be a hydraulically upgradient direction with respect to the former source area. Based on its upgradient location and distance from the source area, this residence is not likely at significant risk of petroleum vapor migration from former UST source area. Other residences in the vicinity of the subject site (located to the east and west) are inferred to contain basements. As groundwater is inferred to flow to the south, these residences are located in a perceived cross-gradient direction with respect to the source area.

What's south?

No complaints of petroleum odors are known to have been reported in the immediate vicinity of the site.

Any buildings screened w/PID?

Surface Water

The closest surface water body is the Otter Creek, located approximately 500 feet to the south of the former common UST source area. Given the low source area strength, and the distance between water body and the source, the Otter Creek is not anticipated to be at risk from the subject site.

Utility Corridors

Groundwater is found at approximately 15 to 16 feet below grade at the site; this elevation is deeper than the elevation (4 to 5 feet below grade) where utilities are typically found. In addition, there are no known underground utilities in the vicinity of the source area, therefore, the potential for dissolved contaminant migration through utility corridors is considered negligible.

- Water or sewer main along Rte 4?
- telephone, natural gas?

IV. CONCLUSIONS

Based on this initial site investigation, the following conclusions are offered:

1. Subsurface petroleum contamination was detected in soil at the subject site during the UST system closures and piping system upgrades on December 9, 1998; similar subsurface conditions were observed during system upgrades in 1986.

2. Two groundwater monitoring wells were installed at the site on April 4, 2000.

3. There was no free phase product present in any of the site wells on April 14, 2000.

4. Several compounds were detected in excess of VGESs in samples collected from both monitoring wells.

5. There are currently no known sensitive receptors affected by subsurface petroleum contamination from the former USTs or piping system at the Site.

6. Over time, the natural processes of dilution, dispersion, and biodegradation will continue to reduce dissolved contaminant concentrations present in the subsurface at the site.

7. There is no longer a continuing source at the site.

8. The downgradient extent of contamination has not been defined.

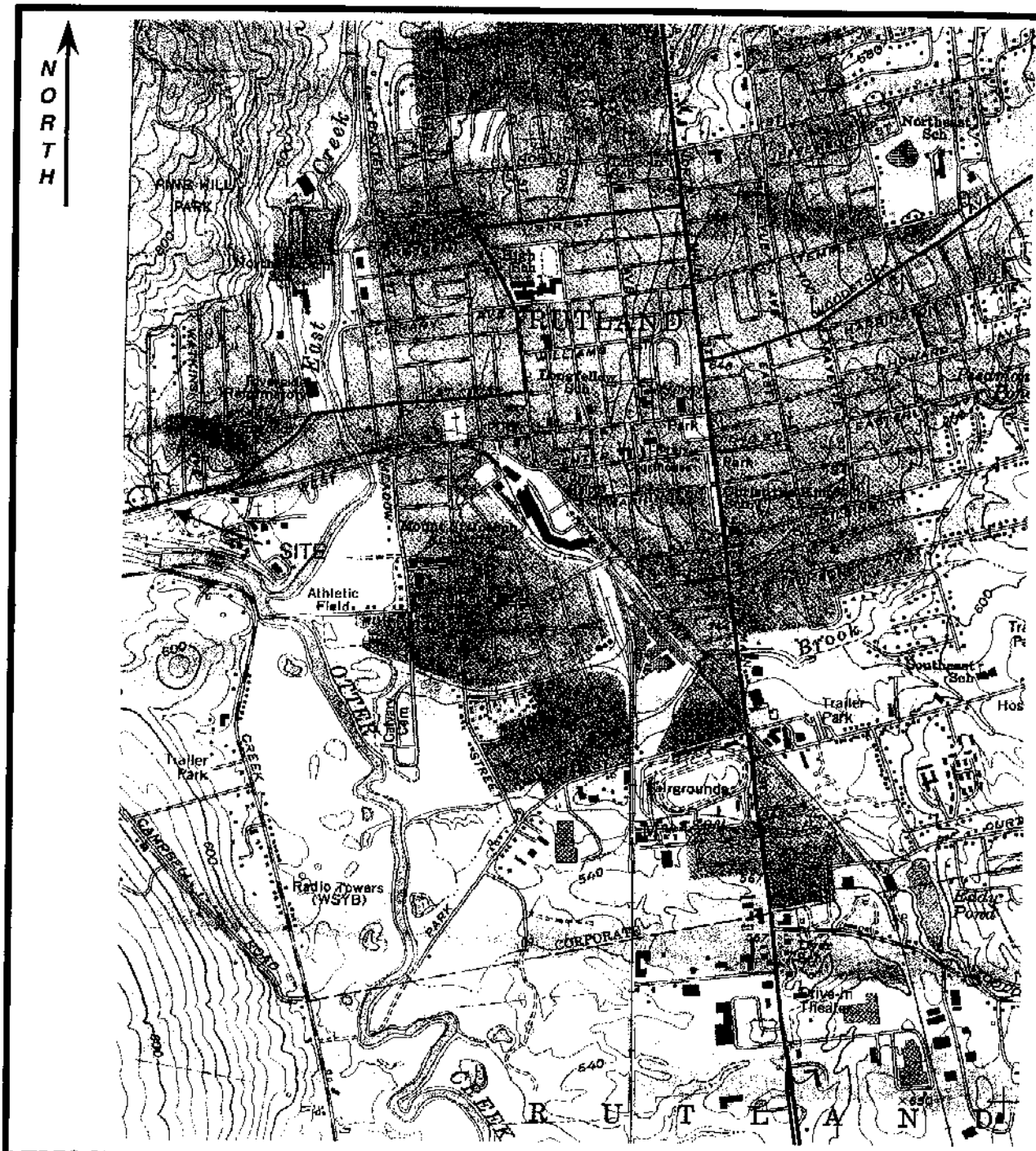
9. Property use in the inferred downgradient direction (south) with respect to the source area is commercial and industrial; there are no known receptors likely at risk of impact in the downgradient direction.

V. RECOMMENDATIONS

Based on the results of this site investigation, Griffin recommends the following:

In order to monitor and track the expected decrease in contaminant concentrations, monitoring wells MW-1 and MW-2 should be sampled on an annual basis. These samples should be analyzed by EPA Method 8021B for the presence of petroleum related compounds. Pending VTDEC approval, the next sampling event should take place in April of 2001 and continue annually until such time that contaminant concentrations drop below applicable groundwater standards. At that time, Griffin can recommend cessation of groundwater monitoring.

Due to the lack of known receptor impact and the difficult site drilling constraints (i.e., subsurface and overhead obstructions) Griffin does not recommend the installation of additional monitoring wells at this time.



VTDEC Site #87-0105

Griffin Job Number: *59941533*

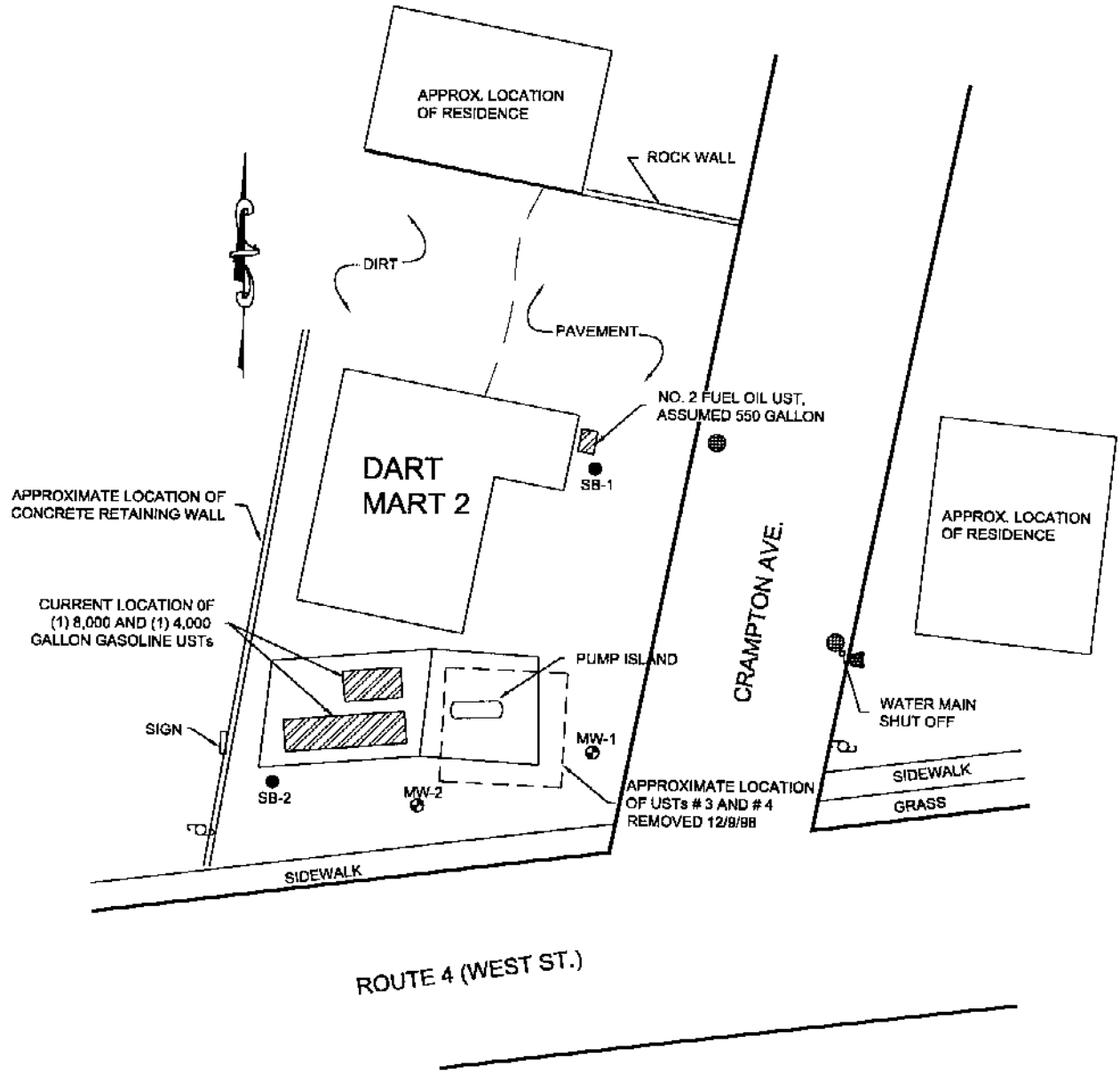
Source: *USGS Rutland Quadrangle 1961, photorevised 1988*

GRIFFIN INTERNATIONAL

Dart Mart II
Rutland, Vermont

Site Location Map
USGS Mapping

Date: 06/08/00	Figure: 1	Scale: 1:24,000	By: RH



LEGEND

MW-1 — MONITORING WELL

HYDRANT

MANHOLE

TELEPHONE POLE

SB-1 — APPROX. LOCATION OF SOIL BORING

JOB #: 59941533

VTDEC SITE #: 87-0105

SITE SURVEY BY GRIFFIN INTERNATIONAL, 4/14/00

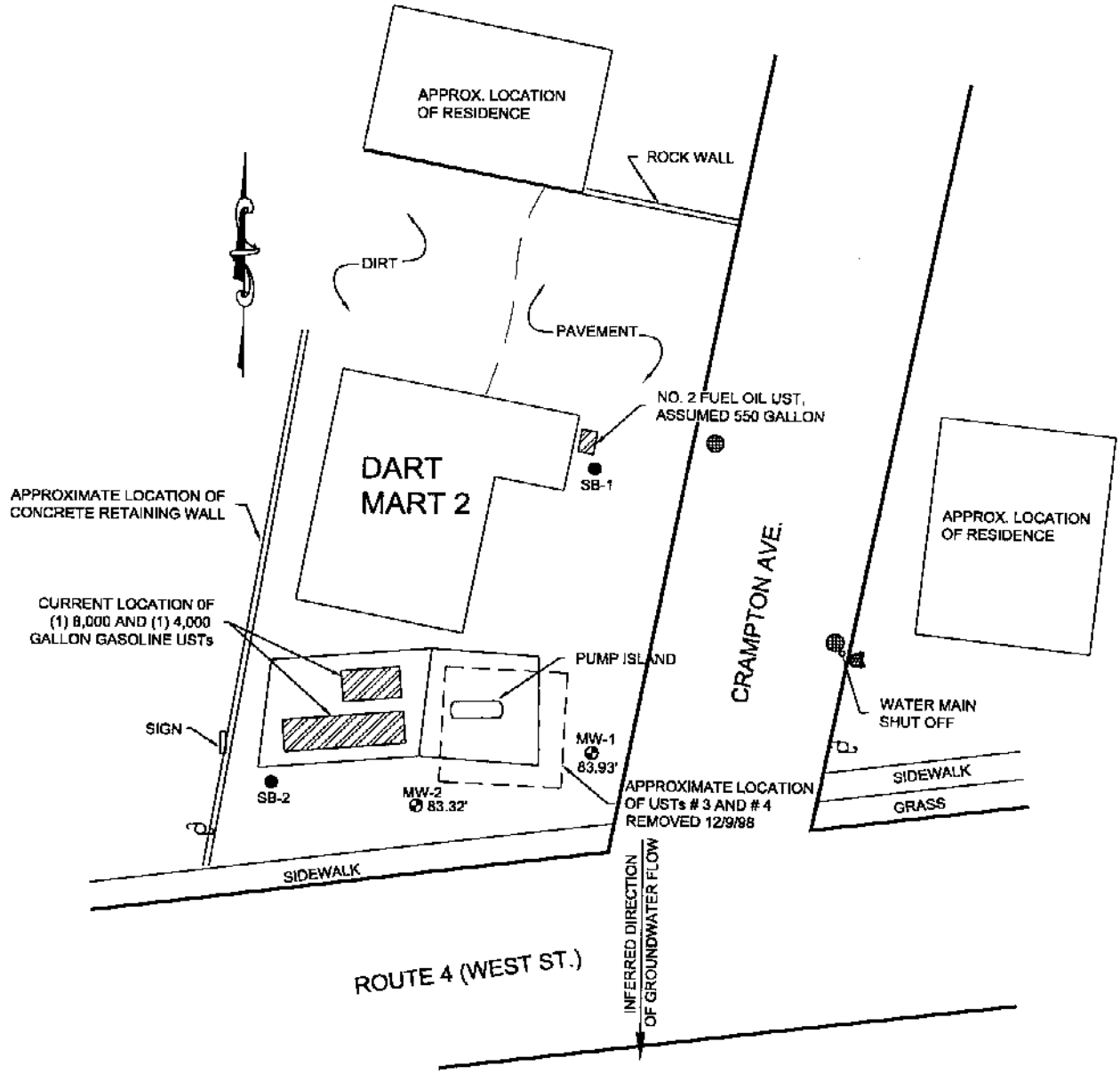
GRIFFIN INTERNATIONAL INC

DART MART 2

ROUTE 4 (WEST ST.), RUTLAND, VT

SITE MAP

DATE: 6/13/00	DWG.#: 1	SCALE:1"= 30'	DRN.: MP	APP.: RH



LEGEND

MW-1 83.93' — MONITORING WELL WITH GROUNDWATER ELEVATION (FT)

HYDRANT

MANHOLE

TELEPHONE POLE

SB-1 — APPROX. LOCATION OF SOIL BORING

JOB #: 59941533

VTDEC SITE #: 87-0105

SITE SURVEY BY GRIFFIN INTERNATIONAL, 4/14/00
ARBITRARY ELEVATION OF 100 FEET SET AT TOP-OF-CASING FOR MW-1

GRIFFIN INTERNATIONAL INC

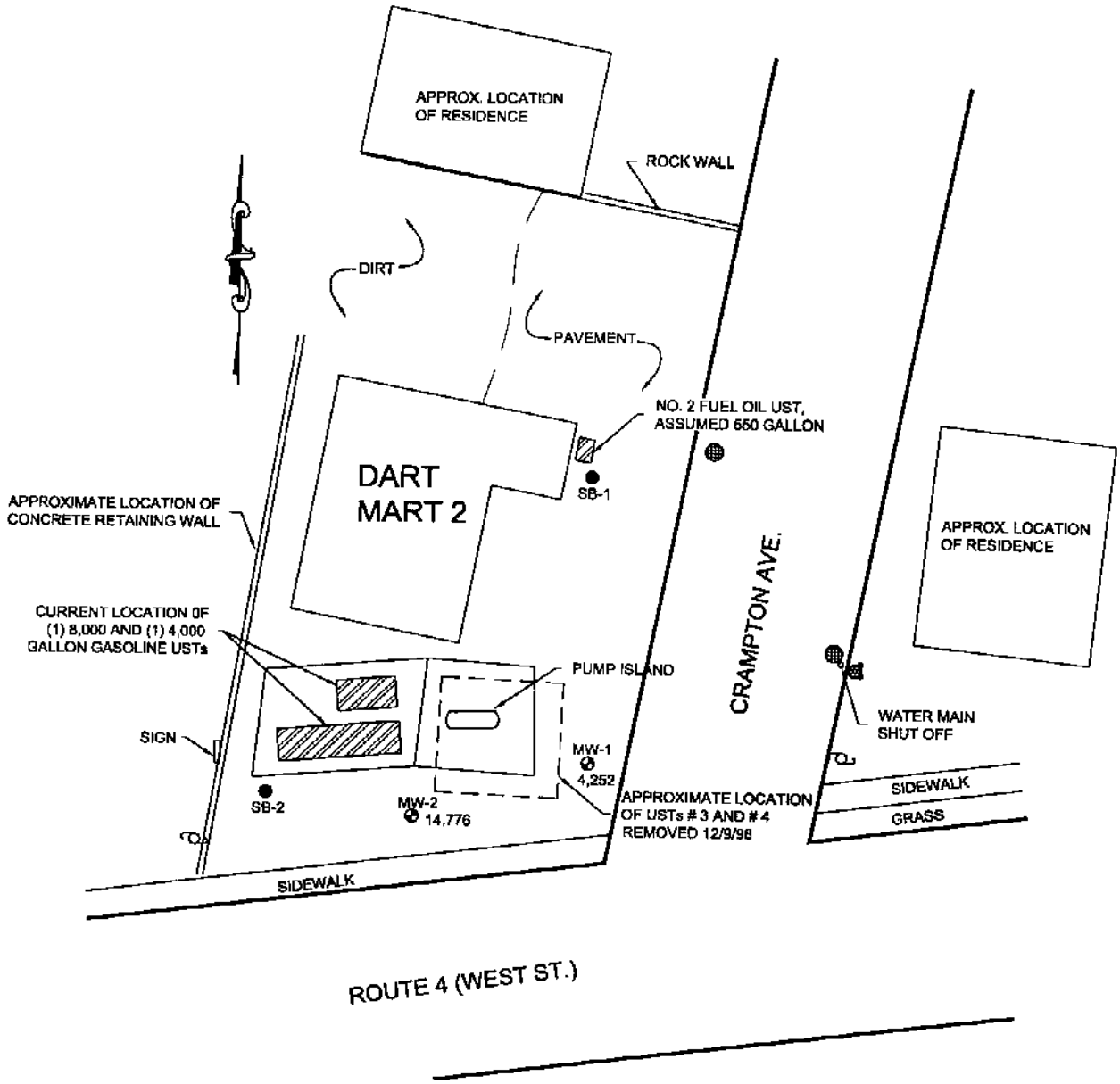
DART MART 2

ROUTE 4 (WEST ST.), RUTLAND, VT

GROUNDWATER ELEVATION MAP

MEASURED: 4/14/00

DATE: 6/13/00	DWG.#: 2	SCALE:1"= 30'	DRN.: MP	APP.: RH



LEGEND

MW-1 4,252 — MONITORING WELL WITH TOTAL VOC CONCENTRATION, METHOD 8021B (ppb)

HYDRANT

MANHOLE

TELEPHONE POLE

SB-1 — APPROX. LOCATION OF SOIL BORING

JOB #: 59941533

VTDEC SITE #: 87-0105

SITE SURVEY BY GRIFFIN INTERNATIONAL, 4/14/00

GRIFFIN INTERNATIONAL INC

DART MART 2

ROUTE 4 (WEST ST.), RUTLAND, VT

CONTAMINANT CONCENTRATION MAP

SAMPLED: 4/14/00

DATE: 6/13/00	DWG.#: 3	SCALE:1"= 30'	DRN.: MP	APP.: RH

Appendix B

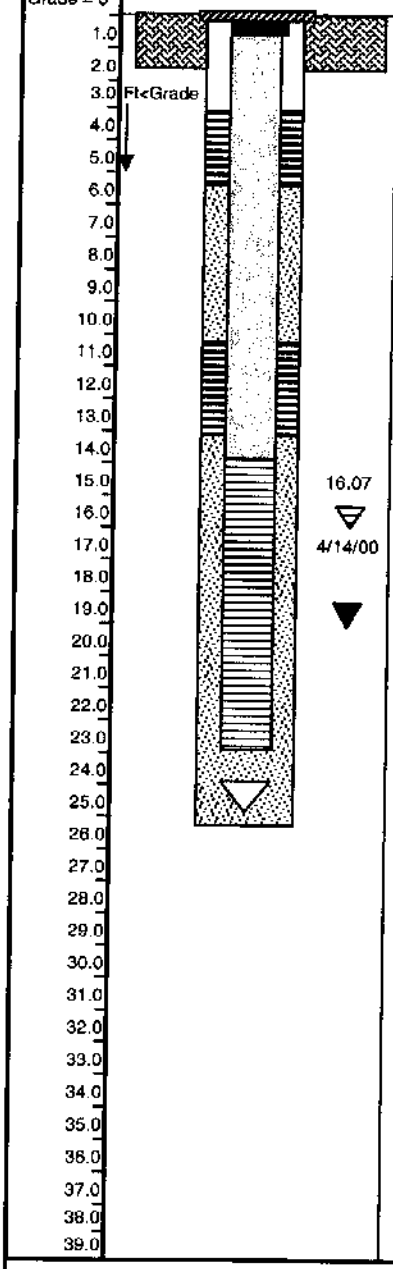
Well Logs

BORING LOG AND WELL CONSTRUCTION DIAGRAM
Well No: MW-1

Dart Mart II
Rutland, Vermont
VTDEC Site #87-0105

GRIFFIN INTERNATIONAL

Griffin Project #:	59941533	Date Installed:	4/19/00
Drilled by :	Griffin International	Drilling Method:	Vibratory
Driller:	Adams Engineering	Boring Diameter.:	2.5
Supervised by:	RH	Development Method:	Bailer
Logged by:	RH	Screened Length:	10 Ft.



Pen/Rec (") / Blow Count	Interval (') / PID (ppm)	Soil Characteristics (Asphalt Surface)	Letter Symbol	Graphic Symbol
	0-2	Dry, reddish, fine sand with some silt, no odors.	SM	
	0 ppm			
	2-14	Dry, light brown, fine sand with silt, gasoline odor.	SM	
	320 ppm @ 5'			
	320 ppm @ 7'			
	280 ppm @10'			
	260 ppm @ 13'			
	14-17	Dry, light brown, medium to fine sand, gasoline odor.	SW	
	340 ppm @ 15'			
	17-24	Moist, brown, silt and fine sand, gasoline odor.	ML	
	180 ppm @ 18'			
	20 ppm @ 19'			
	50 ppm @ 23'			
	24-25	Wet, brown, coarse gravel, no odor.	GW	
	0 ppm	end of exploration - base of well		

Legend

- Road Box with Bolt Down Cover, Set in Cement.
- Existing Surface.
- Bentonite Seal Placed in Annulus.
- Grade #1 Silica Sand Pack Placed in Annulus.
- Drill Cuttings Placed in Annulus.
- Locking Plug.
- 1.5" ID, Schedule 40 PVC Riser.
- 1.5" ID, Schedule 40 PVC, 0.010"-Slotted Well Screen
- Plug Point
- Approximate Water Level During Drilling
- Static Water Level

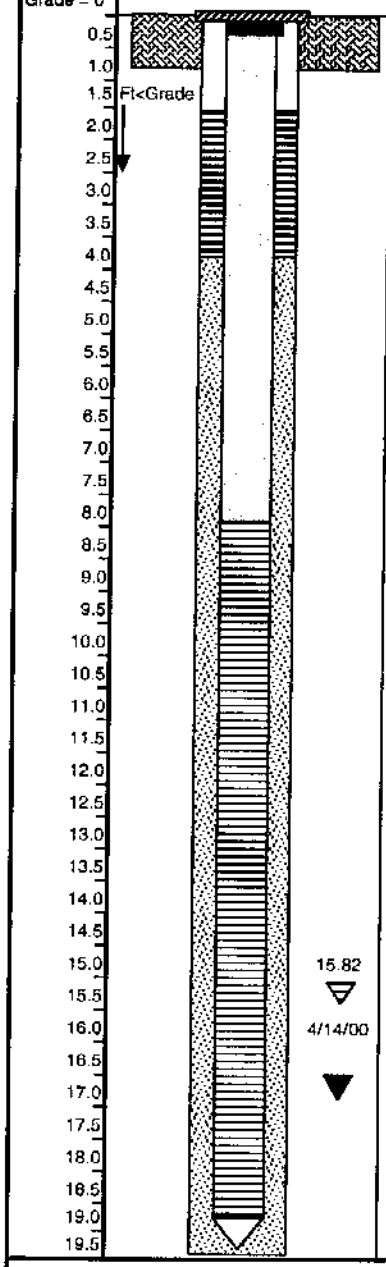
na - not applicable

BORING LOG AND WELL CONSTRUCTION DIAGRAM
Well No: MW-2

Dart Mart II
Rutland, Vermont
VTDEC Site #87-0105

GRIFFIN INTERNATIONAL

Griffin Project #:	59941533	Date Installed:	4/19/00
Drilled by :	Griffin International	Drilling Method:	Vibratory
Driller:	Adams Engineering	Boring Diameter.:	2.5
Supervised by:	RH	Development Method:	Bailer
Logged by:	RH	Screened Length:	10 Ft.



Well Construction	Pen/Rec (") / Blow Count	Interval (') / PID (ppm)	Soil Characteristics	Letter Symbol	Graphic Symbol
		0-4 0 ppm	Asphalt Surface Dry, black, medium gravel.	GW	
		4-17 20 ppm @ 5'	Dry, light brown, fine sand with silt, gasoline odor.		
		100 ppm @ 8'			
		64 ppm @ 14'			
		150 ppm @ 16'			
		17-21	Wet, brown, coarse gravel, no odor.	GW	
		120 ppm @ 18'			
		40 ppm @ 20'	driller refusal @ 21' - base of well @ 20'		

Legend

- Road Box with Bolt Down Cover, Set in Cement.
- Existing Surface.
- Bentonite Seal Placed in Annulus.
- Grade #1 Silica Sand Pack Placed in Annulus.
- Drill Cuttings Placed in Annulus.
- Locking Plug.
- 1.5" ID, Schedule 40 PVC Riser.
- 1.5" ID, Schedule 40 PVC, 0.010"-Slotted Well Screen
- Plug Point
- Approximate Water Level During Drilling
- Static Water Level

na - not applicable

BORING LOG
Well No: SB-1

Dart Mart II
Rutland, Vermont
VTDEC Site #87-0105

GRIFFIN INTERNATIONAL

Griffin Project #:	59941533	Date Installed:	4/4/00
Drilled by :	Griffin International	Drilling Method:	Vibratory
Driller:	Adams Engineering	Boring Diameter.:	2.5
Supervised by:	RH	Development Method:	na
Logged by:	RH	Screened Length:	na

Grade = 0	Well Construction	Pen/Rec (") / Blow Count	Interval (') / PID (ppm)	Soil Characteristics: Asphalt Surface	Letter Symbol	Graphic Symbol
0.5			0-4	Dry, light brown, fine sand, some silt, no odors.	SW	
1.0			0 ppm			
1.5	Ft<Grade					
2.0						
2.5						
3.0						
3.5						
4.0			4-6	Dry, light brown, fine sand with silt, no odors.	SM	
4.5			0 ppm			
5.0						
5.5						
6.0			6-7	Moist, light brown, fine sand with silt, no odors.	SM	
6.5			0 ppm			
7.0			7-12.8	Dry, light brown, fine sand with silt, no odors.	SM	
7.5			0 ppm			
8.0						
8.5						
9.0						
9.5						
10.0						
10.5						
11.0						
11.5						
12.0						
12.5						
13.0				12.8 feet below grade - driller refusal		
13.5						
14.0						
14.5						
15.0						
15.5						
16.0						
16.5						
17.0						
17.5						
18.0						
18.5						
19.0						
19.5						

Legend

- Road Box with Bolt Down Cover, Set in Cement.
- Existing Surface.
- Bentonite Seal Placed in Annulus.
- Grade #1 Silica Sand Pack Placed in Annulus.
- Drill Cuttings Placed in Annulus.
- Locking Plug.
- 1.5" ID, Schedule 40 PVC Riser.
- 1.5" ID, Schedule 40 PVC, 0.010"-Slotted Well Screen
- Plug Point
- Approximate Water Level During Drilling
- Static Water Level

na - not applicable

BORING LOG
Well No: SB-2

Dart Mart II
Rutland, Vermont
VTDEC Site #87-0105

GRIFFIN INTERNATIONAL

Griffin Project #:	58941533	Date Installed:	4/4/00
Drilled by :	Griffin International	Drilling Method:	Vibratory
Driller:	Adams Engineering	Boring Diameter.:	2.5
Supervised by:	RH	Development Method:	na
Logged by:	RH	Screened Length:	na

Grade = 0	Well Construction	Pen/Rec (") / Blow Count	Interval (') / PID (ppm)	Soil Characteristics	Letter Symbol	Graphic Symbol
				Asphalt Surface		
0.5			0-4	Dry, light brown, poorly sorted coarse gravel.	GP	
1.0			0 ppm			
1.5	Ft<Grade					
2.0						
2.5						
3.0						
3.5						
4.0			4-12.5	Dry, light brown, fine sand with silt, no odors.	SM	
4.5						
5.0			0 ppm @ 5'			
5.5						
6.0					SM	
6.5						
7.0			0 ppm @ 7'		SM	
7.5						
8.0						
8.5						
9.0						
9.5						
10.0			0 ppm @ 10'			
10.5						
11.0						
11.5						
12.0			0 ppm @ 12'			
12.5						
13.0				12.5 feet below grade - driller refusal		
13.5						
14.0						
14.5						
15.0						
15.5						
16.0						
16.5						
17.0						
17.5						
18.0						
18.5						
19.0						
19.5						

Legend

- Road Box with Bolt Down Cover, Set In Cement.
- Existing Surface.
- Bentonite Seal Placed in Annulus.
- Grade #1 Silica Sand Pack Placed in Annulus.
- Drill Cuttings Placed in Annulus.
- Locking Plug.
- 1.5" ID, Schedule 40 PVC Riser.
- 1.5" ID, Schedule 40 PVC, 0.010"-Slotted Well Screen
- Plug Point
- Approximate Water Level During Drilling
- Static Water Level

na - not applicable

Appendix C

Liquid Level Monitoring Data

GROUNDWATER LIQUID LEVEL DATA

Monitoring Date: 4/14/00

Well I.D.	Top of Casing Elevation	Depth To Product	Depth To Water	Product Thickness	Specific Gravity Of Product	Hydro Equivalent	Corrected Depth To Water	Corrected Water Table Elevation
MW-1	**100.00**	-	**16.07**	-	-	-	**16.07**	**83.93**
MW-2	**99.14**	-	**15.82**	-	-	-	**15.82**	**83.32**

nm - no measurement
all measurements in feet
monitoring well top of casing elevations surveyed by Griffin International 4/14/00
arbitrary elevation of 100 feet set at top of casing for MW-1

Appendix D

Groundwater Quality Summary

Griffin International, Inc.

GROUNDWATER QUALITY SUMMARY

Dart Mart II
Rutland, Vermont

PARAMETER	MW1				
	4/14/00				VGES
Benzene	**399.**				5
Toluene	**1,150.**				1000
Ethylbenzene	**218.**				700
Xylenes	**1,250.**				10000
MTBE	**515.**				40
Total BTEX + MTBE	**3,532.**				-
1,3,5-Trimethylbenzene	**165.**				4
1,2,4-Trimethylbenzene	**446.**				5
Naphthalene	**109.**				20
Total VOCs	**4,252.**				-

PARAMETER	MW2				
	4/14/00				VGES
Benzene	**1,550.**				5
Toluene	**4,360.**				1000
Ethylbenzene	**756.**				700
Xylenes	**4,490.**				10000
MTBE	**1,020.**				40
Total BTEX + MTBE	**12,176.**				-
1,3,5-Trimethylbenzene	**549.**				4
1,2,4-Trimethylbenzene	**1,590.**				5
Naphthalene	**461.**				20
Total VOCs	**14,776.**				-

ANALYSIS: EPA Method 8021B
VGES = Vermont Groundwater Enforcement Standard (1/20/00)
ND<1 = not detected less than detection limit
Bold indicates a detection.
NA = not applicable, not analyzed > VGES
TBQ Trace Below Quantitation Limit
All Values Reported in ug/l (ppb)

Appendix E

Groundwater Laboratory Analytical Reports

ENDYNE, INC.

Laboratory Services

160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

Griffin International
PO Box 943
Williston, VT 05495
Attn: R. Higgins

PROJECT: Dart Mart 2/#59941533
ORDER ID: 6869
RECEIVE DATE: April 17, 2000
REPORT DATE: May 1, 2000

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits, unless otherwise noted.

Samples 153364 and 153365 were found to have a pH of > 2.0.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

Enclosures

ENDYNE, INC.

Laboratory Services

160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

CLIENT: Griffin International
PROJECT: Dart Mart 2/#59941533
REPORT DATE: May 1, 2000

ORDER ID: 6869
DATE RECEIVED: April 17, 2000
SAMPLER: JR/MP

Site: Trip Blank
Ref. Number: 153362
Anal. Method: SW 8021B
Analyst: 555
Date Sampled: 4/14/00
Time Sampled: 7:55 AM
Analysis Date: 4/20/00

Parameter	Results ug/L
MTBE	< 10.0
Benzene	< 1.0
Toluene	< 1.0
Ethylbenzene	< 1.0
Xylenes, Total	< 1.0
1,3,5 Trimethyl Benzene	< 1.0
1,2,4 Trimethyl Benzene	< 1.0
Naphthalene	< 1.0
UIP's	0.
Surrogate 1	93.%

Site: Duplicate
Ref. Number: 153364
Anal. Method: SW 8021B
Analyst: 555
Date Sampled: 4/14/00
Time Sampled: 11:50 AM
Analysis Date: 4/21/00

Parameter	Results ug/L
MTBE	< 100.
Benzene	124.
Toluene	376.
Ethylbenzene	83.7
Xylenes, Total	437.
1,3,5 Trimethyl Benzene	96.9
1,2,4 Trimethyl Benzene	240.
Naphthalene	48.7
UIP's	>10.
Surrogate 1	87.%

Site: MW-1
Ref. Number: 153363
Anal. Method: SW 8021B
Analyst: 555
Date Sampled: 4/14/00
Time Sampled: 11:50 AM
Analysis Date: 4/21/00

Parameter	Results ug/L
MTBE	515.
Benzene	399.
Toluene	1,150.
Ethylbenzene	218.
Xylenes, Total	1,250.
1,3,5 Trimethyl Benzene	165.
1,2,4 Trimethyl Benzene	446.
Naphthalene	109.
UIP's	>10.
Surrogate 1	90.%

Site: MW-2
Ref. Number: 153365
Anal. Method: SW 8021B
Analyst: 555
Date Sampled: 4/14/00
Time Sampled: 11:52 AM
Analysis Date: 4/19/00

Parameter	Results ug/L
MTBE	1,020.
Benzene	1,550.
Toluene	4,360.
Ethylbenzene	756.
Xylenes, Total	4,490.
1,3,5 Trimethyl Benzene	549.
1,2,4 Trimethyl Benzene	1,590.
Naphthalene	461.
UIP's	>10.
Surrogate 1	97.%

ENDYNE, INC.
160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333

CHAIN-OF-CUSTODY-RECORD

37049

JOB# 59941533

Project Name: DART MART 2 RUTLAND, VT	Reporting Address: GRIFFIN	Billing Address: GRIFFIN
Endyne Order ID: (Lab Use Only) 6869 / -O -I -S	Company: Contact Name/Phone #: GRIFFIN RH	Sampler Name: Phone #: JR / MP

Ref # (Lab Use Only)	Sample Identification	Matrix	GRAB	COMP	Date/Time 4.14.00	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
153362	TRIP BLANK	H_2O	✓		0755	2	40ml		8021B	HCl	
153363	MW-1				1150						
153364	DUPLICATE MW-1				1150						
153365	MW-2				1152						

Relinquished by:	Date/Time	Received by:	Date/Time	Received by:	Date/Time
[signature]	4/14/00	Stacy Benjamin	4-17-00 10:45AM	[signature]	4/17/00 11:15

New York State Project: Yes ___ No ✓

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Sulfate	21	1664 TPH/FOG	26	8270 PAH
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	8015 GRO	27	PP13 Metals
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	8015 DRO	28	RCRA8 Metals
4	Nitrite N	9	BOD	14	Turbidity	19	(8021B)	24	8260/8260B	29	
5	Nitrate N	10	Alkalinity	15	Conductivity	20	8010/8020	25	8270 B/N or Acid	30	
31	Metals (As Is, Total, Diss.) Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Si, Sr, Ti, Tl, V, Zn										
32	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)					33					
34	Other										

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ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

Griffin International
PO Box 943
Williston, VT 05495
Attn: Rob Higgins

PROJECT: Dart Mart 2/#59941533
ORDER ID: 6702
RECEIVE DATE: April 5, 2000
REPORT DATE: April 13, 2000

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits, unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

CLIENT: Griffin International
PROJECT: Dart Mart 2/#59941533
REPORT DATE: April 13, 2000

ORDER ID: 6702
DATE RECEIVED: April 5, 2000
SAMPLER: RH

Ref. Number: 152803 | Site: SB 1 | Date Sampled: April 4, 2000 | Time: 9:30 AM

Parameter	Result	Unit	Method	Analysis Date	Analyst
MTBE	< 20.0	ug/kg, dry	SW 8260	4/11/00	725
Benzene	< 10.0	ug/kg, dry	SW 8260	4/11/00	725
Toluene	< 10.0	ug/kg, dry	SW 8260	4/11/00	725
Ethylbenzene	< 10.0	ug/kg, dry	SW 8260	4/11/00	725
Xylenes, Total	< 20.0	ug/kg, dry	SW 8260	4/11/00	725
1,3,5 Trimethyl Benzene	< 10.0	ug/kg, dry	SW 8260	4/11/00	725
1,2,4 Trimethyl Benzene	< 10.0	ug/kg, dry	SW 8260	4/11/00	725
Naphthalene	< 50.0	ug/kg, dry	SW 8260	4/11/00	725
UIP's	0.		SW 8260	4/11/00	725
Percent Solid	93.	%	SW 8260	4/11/00	725
Surrogate 1	95.	%	SW 8260	4/11/00	725

Ref. Number: 152804 | Site: SB 2 | Date Sampled: April 4, 2000 | Time: 2:30 PM

Parameter	Result	Unit	Method	Analysis Date	Analyst
MTBE	< 20.0	ug/kg, dry	SW 8260	4/11/00	725
Benzene	< 10.0	ug/kg, dry	SW 8260	4/11/00	725
Toluene	< 10.0	ug/kg, dry	SW 8260	4/11/00	725
Ethylbenzene	< 10.0	ug/kg, dry	SW 8260	4/11/00	725
Xylenes, Total	< 20.0	ug/kg, dry	SW 8260	4/11/00	725
1,3,5 Trimethyl Benzene	< 10.0	ug/kg, dry	SW 8260	4/11/00	725
1,2,4 Trimethyl Benzene	< 10.0	ug/kg, dry	SW 8260	4/11/00	725
Naphthalene	< 50.0	ug/kg, dry	SW 8260	4/11/00	725
UIP's	0.		SW 8260	4/11/00	725
Percent Solid	95.	%	SW 8260	4/11/00	725
Surrogate 1	94.	%	SW 8260	4/11/00	725

ENDYNE, INC.
160 James Brown Drive
Williston, Vermont 05495
(802) 879-4333

CHAIN-OF-CUSTODY-RECORD

37034

99941533

Project Name: DARK MALT 2	Reporting Address: GRIFFIN		Billing Address:
Endyne Order ID: (Lab Use Only) 6702	-O / -I / -S	Company: Contact Name/Phone #: R. HIGGINS	Sampler Name: Phone #: R. HIGGINS

Ref # (Lab Use Only)	Sample Identification	Matrix	GRAB	COMP	Date/Time	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
152803	SB1	Soil	✓		930	2	4oz G		8021B	—	
152804	SB2	Soil	✓		230	2	4oz G		8021B	—	

Relinquished by: Robert Hnp — Date/Time

Received by: Stacy Benjamin — Date/Time 4-5-00 10:45AM

Received by: — Date/Time 4/5/00 10:15

New York State Project: Yes ___ No ✓

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Sulfate	21	1664 TPH/FOG	26	8270 PAH
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	8015 GRO	27	PP13 Metals
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	8015 DRO	28	RCRA8 Metals
4	Nitrite N	9	BOD	14	Turbidity	19	8021B	24	8260/8260B	29	
5	Nitrate N	10	Alkalinity	15	Conductivity	20	8010/8020	25	8270 B/N or Acid	30	
31	Metals (As Is, Total, Diss.) Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Si, Sr, Ti, Tl, V, Zn										
32	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)					33					
34	Other										

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